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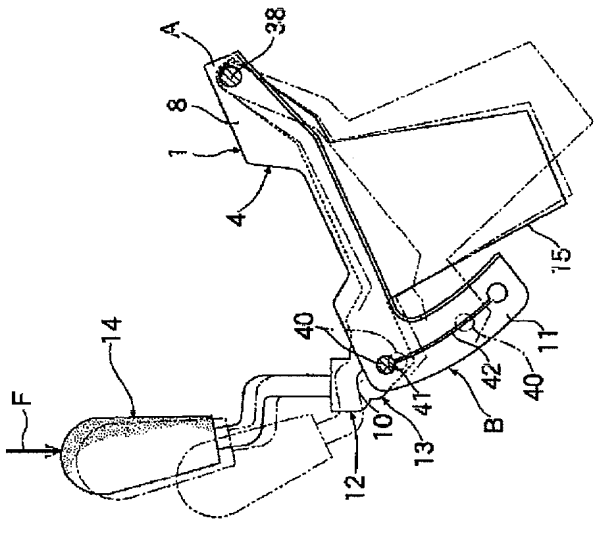
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(54)【発明の名称】　車両用変速操作装置の衝撃力吸収構造

(57)【要約】
【課題】　当初、シフトレバーに作用する高い衝撃力を確実に吸収し得る機能と、その後において、前記衝撃力を緩徐に減衰し得る機能とを持つ理想的な車両用変速操作装置の衝撃力吸収構造を提供する。
【解決手段】　車両用変速操作装置１２は、装置本体１３とシフトレバー１４とを備える。装置本体１３の車両前部側は車体１の第１支持部Ａに第１支持軸３８を介して揺動可能に設けられる。装置本体１３の車両後部側に在って第１支持軸３８と平行な第２支持軸４０が車体１の第２支持部Ｂに、そこに在る軸挿通孔４１に挿通されて保持される。装置１２に作用する衝撃力Ｆによって装置本体１３の第１支持軸３８を中心とした揺動を現出させるべく、第２支持部Ｂに、衝撃力Ｆに伴う第２支持軸４０の揺動により破壊される円弧状溝４２が設けられる。



【特許請求の範囲】
【請求項１】　装置本体（１３）と、その装置本体（１３）から突出するシフトレバー（１４）とを備えた車両用変速操作装置（１２）の衝撃力吸収構造において、前記装置本体（１３）の車両前部側を車体（１）の第１支持部（Ａ）に第１支持軸（３８）を介して揺動可能に設け、前記装置本体（１３）の車両後部側に在って前記第１支持軸（３８）と平行な第２支持軸（４０）を、前記車体（１）の第２支持部（Ｂ）に、そこに在る軸挿通孔（４１）に挿通して保持させ、前記変速操作装置（１２）に作用する衝撃力（Ｆ）で前記装置本体（１３）の前記第１支持軸（３８）を中心とした揺動を現出させるべく、前記第２支持部（Ｂ）に、前記軸挿通孔（４１）に連通し、且つ前記第２支持軸（４０）の直径よりも幅狭であって、前記衝撃力に伴う前記第２支持軸（４０）の揺動により破壊される円弧状溝（４２）を設けたことを特徴とする、車両用変速操作装置の衝撃力吸収構造。
【発明の詳細な説明】
【０００１】
【発明の属する技術分野】本発明は車両用変速操作装置、特に、装置本体と、その装置本体から突出するシフトレバーとを備えたものの衝撃力吸収構造に関する。
【０００２】
【従来の技術】従来、この種の衝撃力吸収構造としては、装置本体を車体フレームに揺動自在に設け、その装置本体と車体フレームとの間に設けた、つっかい棒により装置本体の揺動を拘束し、変速操作装置に所定値以上の衝撃力が作用したとき、そのつっかい棒を分断させて変速操作装置を揺動させるように構成したものが知られている（特開平１０－１６５９７号公報参照）。
【０００３】
【発明が解決しようとする課題】この種の衝撃力吸収構造としては、当初、変速操作装置に作用する高い衝撃力を確実に吸収し得る機能と、その後において、前記衝撃力を緩徐に減衰し得る機能とを持つものが理想的である。しかしながら従来構造は前段の機能を有するとしても、後段の機能は持たない。
【０００４】
【課題を解決するための手段】本発明は前記２つの機能を備えた理想的な前記衝撃力吸収構造を提供することを目的とする。
【０００５】前記目的を達成するため本発明によれば、装置本体と、その装置本体から突出するシフトレバーとを備えた車両用変速操作装置の衝撃力吸収構造において、前記装置本体の車両前部側を車体の第１支持部に第１支持軸を介して揺動可能に設け、前記装置本体の車両後部側に在って前記第１支持軸と平行な第２支持軸を、前記車体の第２支持部に、そこに在る軸挿通孔に挿通して保持させ、前記変速操作装置に作用する衝撃力で前記装置本体の前記第１支持軸を中心とした揺動を現出させるべく、前記第２支持部に、前記軸挿通孔に連通し、且つ前記第２支持軸の直径よりも幅狭であって、前記衝撃力に伴う前記第２支持軸の揺動により破壊される円弧状溝を設けた車両用変速操作装置の衝撃力吸収構造が提供される。
【０００６】前記構成において、変速操作装置に所定値以上の衝撃力が作用すると、第２支持軸が軸挿通孔から円弧状溝に強制的に食込み、これにより当初の高い衝撃力を確実に吸収することができる。その後においては、装置本体と共に第２支持軸が第１支持軸を中心に揺動して円弧状溝を連続的に破壊するので前記衝撃力を緩徐に減衰させることができる。
【０００７】
【発明の実施の形態】本項において「前、後、左、右」とは、車両の前進方向を「前」とした場合である。
【０００８】図１，２において、車両としての乗用車の車体１は、鋼管製前部クロスメンバ２と、その前部クロスメンバ２に取付けられた鋼板製ブラケット３と、そのブラケット３に取付けられた変速操作装置用鋼板製支持部材４とを備えている。ブラケット３は、前側から後側に向って下り勾配の左右一対の板状取付部５を有し、一方、支持部材４は、両取付部５上に在って、それら取付部５に止め具６により前、後端部分を取付けられた左右一対の板状取付部７を有する。各止め具６はボルト６ａおよびフローティングラバー６ｂよりなる。両取付部７の内縁にはそれぞれ板状立上り部８が連設され、両立上り部８の上縁間において、それらの前端から略中央部までが板状つなぎ部９により連結されている。両立上り部８の後端部分１０は両取付部７の後端より後方へそれぞれ突出し、それら後端部分１０および両取付部７の後端にそれぞれ垂下部１１の上端側が連設されている。
【０００９】変速操作装置１２は装置本体１３と、その装置本体１３から突出するシフトレバー１４とを備えている。装置本体１３は方形の箱形部１５と、その箱形部１５の前面上部に設けられて前方へ突出する前上りのチャンネル形部１６と、箱形部１５の後面上部に設けられて後方へ突出するレバー支持部１７とを有する。
【００１０】シフトレバー１４はレバー本体１８と、その上端に取付けられた操作ノブ１９とよりなる。レバー本体１８はクランク形をなすロッド部２０を有し、その下端に存する球状体２１が、装置本体１３におけるレバー支持部１７の半球状凹面を持つ保持部分２２に嵌められ、蓋体２３によりその保持部分２２に抜止め保持される。
【００１１】ロッド部２０の下側直線部分に、シフトアーム２４の基端が固着され、そのシフトアーム２４はロッド部２０から前方へ延びている。レバー支持部１７において、保持部分２２の前側に左右一対の軸受部分２５が設けられ、その軸受部分２５にセレクトアーム２６の中間筒部２７が支持軸２８を介して取付けられる。セレ

クトアーム２６は支持軸２８を中心に前後方向に揺動可能である。セレクトアーム２６の後端環状部２９は左右方向に延びる軸線を備え、その後端環状部２９に、球状体２１に基端を固着された連結軸３０の球状先端部３１が球面ブシュ３２を介して嵌合される。シフトアーム２４およびセレクトアーム２６の両球状先端部３３，３４にはそれぞれ図示しない操作ワイヤが連結される。

【００１２】装置本体１３のチャンネル形部１６において、その両側板部分３５の前端側は、支持部材４における両立上り部８の前端側に、それらに存する軸挿通孔３６，３７に挿通保持された第１支持軸３８を介して揺動可能に取付けられる。したがって、両立上り部８の前端側は、装置本体１３の車両前部側を揺動可能に設けるための、車体１における第１支持部Ａを構成する。

【００１３】装置本体１３のレバー支持部１７において、その後端部分には、それを貫通して左右方向に延びる軸挿通孔３９が形成されている。その軸挿通孔３９に第１支持軸３８と平行な第２支持軸４０が挿通され、その第２支持軸４０の両端部は、支持部材４における両立上り部８の後端部分１０に、そこに在る軸挿通孔４１にそれぞれ挿通されて保持される。左、右の後端部分１０およびそれに連なる垂下部１１に、軸挿通孔４１に連通し、且つ第２支持軸４０の直径より幅狭な円弧状溝４２がそれぞれ形成される。各円弧状溝４２は第１支持軸（の軸心）３８を中心とする。したがって、第２支持軸４０を保持し、また円弧状溝４２を有する両立上り部８の後端部分１０および両垂下部１１は、車体１の第２支持部Ｂを構成する。

【００１４】前記構成において、シフトレバー１４を左右方向に移動させると、セレクトアーム２６が支持軸２８を中心に前後に揺動し、またシフトレバー１４を前後方向に移動させるとシフトアーム２４が同様に移動する。これにより変速操作を行うことができる。

【００１５】図３において、変速操作装置１２、例えばシフトレバー１４に所定値以上の衝撃力Ｆが作用すると、一点鎖線示のように第２支持軸４０が軸挿通孔４１から円弧状溝４２に強制的に食込み、これにより当初の高い衝撃力Ｆを確実に吸収することができる。その後においては、二点鎖線示のように装置本体１３と共に第２支持軸４０が第１支持軸３８を中心に揺動して円弧状溝４２を連続的に破壊するので、前記衝撃力Ｆを緩徐に減衰させることができる。

【００１６】

【発明の効果】本発明によれば、当初、シフトレバーに作用する高い衝撃力を確実に吸収し得る機能と、その後において、前記衝撃力を緩徐に減衰し得る機能とを備えた理想的な、車両用変速操作装置の衝撃力吸収構造を提供することができる。

【図面の簡単な説明】

【図１】衝撃力吸収構造を備えた変速操作装置の斜視図である。

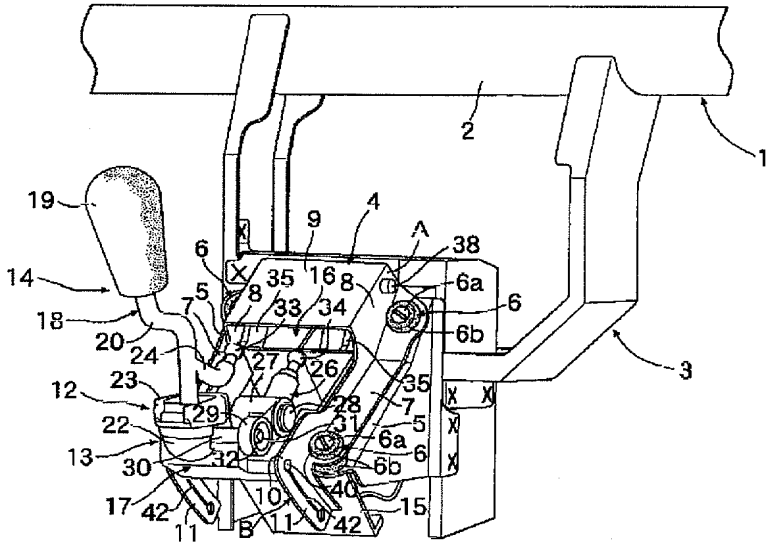
【図２】衝撃力吸収構造を備えた変速操作装置の分解斜視図である。

【図３】作用説明図である。

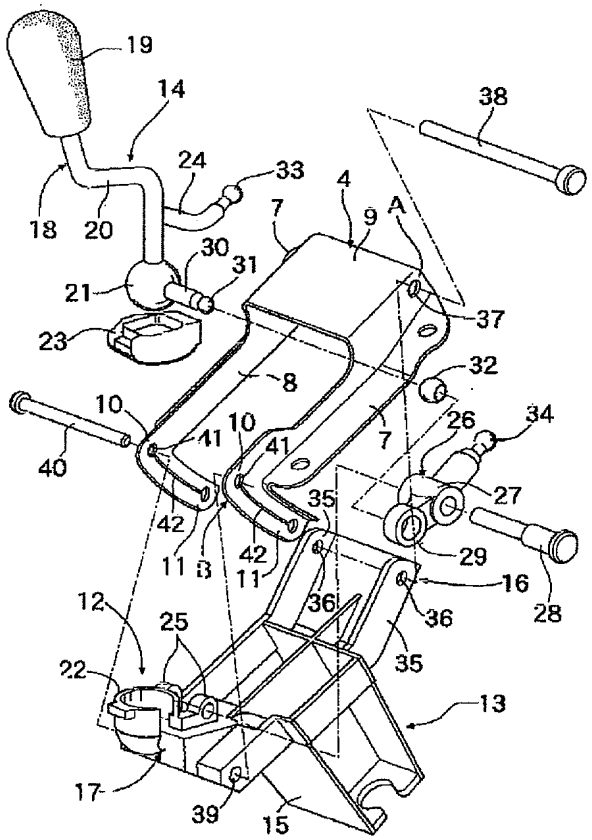
【符号の説明】

１	車体
１２	変速操作装置
１３	装置本体
１４	シフトレバー
３８	第１支持軸
４０	第２支持軸
４１	軸挿通孔
４２	円弧状溝
Ａ	第１支持部
Ｂ	第２支持部
Ｆ	衝撃力

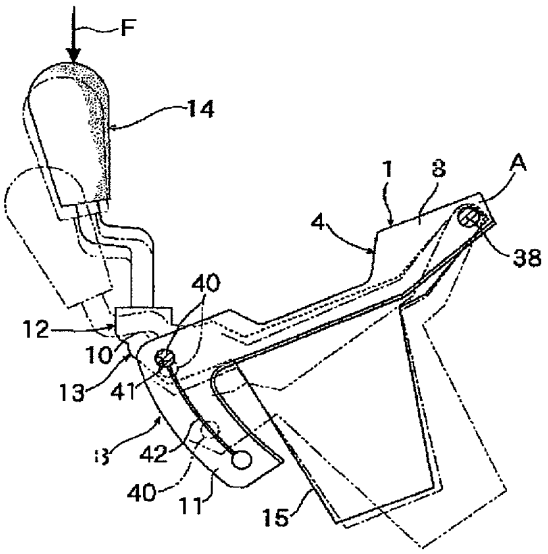
【図1】


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【図2】


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【図3】


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PATENT ABSTRACTS OF JAPAN

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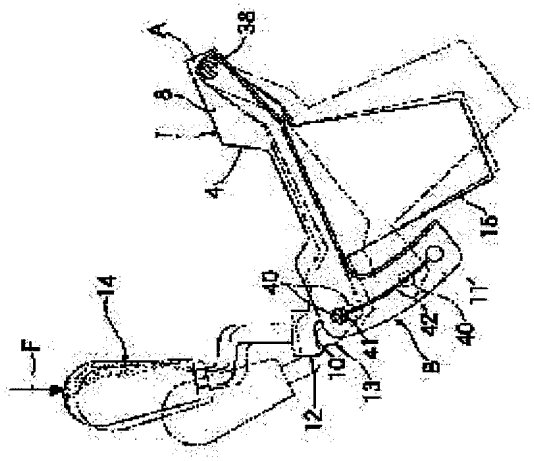
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F16F 7/12

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(54) IMPACT FORCE ABSORBING STRUCTURE OF TRANSMISSION OPERATING DEVICE FOR VEHICLE

(57)Abstract:
PROBLEM TO BE SOLVED: To provide an ideal impact force absorbing structure of a transmission operating device for a vehicle having a function capable of surely absorbing high impact force acting in a shift lever in the beginning and a function capable of gradually damping the impact force thereafter.
SOLUTION: A transmission operating device 12 for a vehicle is provided with a device body 13 and a shift lever 14. A vehicle front side of the device body 13 is swivelably provided through a first support shaft 38 to a first support part A of a car body 1. A second support shaft 40 provided in a vehicle rear side of the device body 13 and in parallel to the first support shaft 38 is held to a second support part B of the car body 1 by inserting the shaft 40 into a shaft insertion hole 41 provided in the support part B. A circular arc-shaped groove 42 broken by swiveling of the second support shaft 40 according to impact force F is provided in the second support part B for making the swiveling appear with the first support shaft 38 of the device body 13 serving as the center by the impact force F acting in the device 12.



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[Date of final disposal for application]

[Patent number]

[Date of registration]

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CLAIMS

[Claim(s)]
[Claim 1] In the impulse force absorption structure of the gear change operating set for cars (12) equipped with the shift lever (14) which projects from the body of equipment (13), and its body of equipment (13) The car anterior part side of said body of equipment (13) is prepared in the 1st supporter (A) of a car body (1) rockable through the 1st support shaft (38). It is in the car posterior part side of said body of equipment (13). The 2nd support shaft (40) parallel to said 1st support shaft (38) Insert in the axial insertion hole (41) which is there, and it is made to hold to the 2nd supporter (B) of said car body (1). In order to make rocking centering on said 1st support shaft (38) of said body of equipment (13) appear by the impulse force (F) which acts on said gear change operating set (12) To said 2nd supporter (B), it is open for free passage at said axial insertion hole (41), and narrow from the diameter of said 2nd support shaft (40). Impulse force absorption structure of the gear change operating set for cars characterized by preparing the circular slot (42) destroyed by rocking of said 2nd support shaft (40) accompanying said impulse force.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] Although this invention was especially equipped with the gear change operating set for cars, and the body of equipment and the shift lever which projects from the body of equipment, it relates to impulse force absorption structure.
[0002]
[Description of the Prior Art] When rocking of the body of equipment is restrained with the prop which prepared the body of equipment in the car-body frame free [rocking], and was formed between that body of equipment and car-body frame as this kind of impulse force absorption structure and the impulse force beyond a predetermined value acts on a gear change operating set conventionally, that prop is made to divide and what was constituted so that a gear change operating set might be made to rock is known (refer to JP,10-16597,A).
[0003]
[Problem(s) to be Solved by the Invention] As this kind of impulse force absorption structure, a thing with the function which may absorb certainly the high impulse force which acts on a gear change operating set, and the function which sets after that and can decrease said impulse force gradually is ideal at the beginning. However, though structure has the function of the preceding paragraph conventionally, it does not have a latter function.
[0004]
[Means for Solving the Problem] This invention aims at offering said ideal impulse force absorption structure equipped with said two functions.
[0005] In the impulse force absorption structure of the gear change operating set for cars which was equipped with the body of equipment, and the shift lever which projects from the body of equipment according to this invention in order to attain said purpose The car anterior part side of said body of equipment is prepared in the 1st supporter of a car body rockable through the 1st support shaft. It is in the car posterior part side of said body of equipment. The 2nd support shaft parallel to said 1st support shaft It is made to insert in and hold to the 2nd supporter of said car body at the axial insertion hole which is there. In order to make rocking centering on said 1st support shaft of said body of equipment appear by the impulse force which acts on said gear change operating set The impulse force absorption structure of the gear change operating set for cars where the circular slot which is open for free passage to said axial insertion hole, and is narrow and is destroyed with rocking of said 2nd support shaft accompanying said impulse force rather than the diameter of said 2nd support shaft by said 2nd supporter was prepared is offered.
[0006] In said configuration, if the impulse force beyond a predetermined value acts on a gear change operating set, thereby, the 2nd support shaft can absorb penetrating and the high impulse force of the beginning certainly compulsorily into a circular slot from an axial insertion hole. It sets after that, and since the 2nd support shaft rocks centering on the 1st support shaft and destroys a circular slot continuously with the body of equipment, said impulse force can be attenuated gradually.
[0007]

[Embodiment of the Invention] In this paragraph, "before, after, the left, and the right" are the cases where the advance direction of a car is made into a "front."
[0008] In drawing 1 and 2, the car body 1 of the passenger car as a car is equipped with the anterior part cross member 2 made from a steel pipe, the bracket 3 made from a steel plate attached in the anterior part cross member 2, and the supporter material 4 for gear change operating sets made from a steel plate attached in the bracket 3. A bracket 3 has the tabular attachment section 5 of a Uichi Hidari pair of a downhill grade toward the backside from a before side, and on the other hand, the supporter material 4 has it on both the attachment section 5, and it has the tabular attachment section 7 of a Uichi Hidari pair which was able to attach the back end part in these attachment section 5 the front by stops 6. Each stops 6 consist of bolt 6a and floating rubber 6b. The tabular standup sections 8 are formed successively by the common-law marriage of both the attachment section 7, respectively, and from those front end to the abbreviation center section is connected by the tabular bond section 9 between the upper limbs of the coexistence going-up section 8. As for the back end part 10 of the coexistence going-up section 8, the upper limit sides of the suspension section 11 are formed successively by the back end of a projection, these back end part 10, and both the attachment section 7, respectively more back than the back end of both the attachment section 7.
[0009] The gear change operating set 12 is equipped with the body 13 of equipment, and the shift lever 14 which projects from the body 13 of equipment. The body 13 of equipment has the rectangular cube type section 15, the channel form section 16 of front going up which is prepared in the front upper part of the cube type section 15, and projects to the front, and the lever supporter 17 that is formed in the rear-face upper part of the cube type section 15, and projects back.
[0010] A shift lever 14 consists of a lever body 18 and an operating knob 19 attached in the upper limit. The lever body 18 has the rod section 20 which makes a crank form, it is inserted in a part for the attaching part 22 in which the spherule 21 which consists in the lower limit has the hemispherical concave surface of the lever supporter 17 in the body 13 of equipment, and ****** maintenance is carried out with a lid 23 at a part for the attaching part 22.
[0011] The end face of the shift arm 24 fixed into the bottom straight-line part of the rod section 20, and the shift arm 24 is prolonged from the rod section 20 to the front. In the lever supporter 17, the bearing part 25 of a Uichi Hidari pair is formed in the before side for a 22 attaching part, and the middle cylinder part 27 of the selection arm 26 is attached in the bearing part 25 through the support shaft 28. The selection arm 26 is rockable to a cross direction centering on the support shaft 28. The back end annular section 29 of the selection arm 26 is equipped with the axis prolonged in a longitudinal direction, and fitting of the spherical point 31 of the connecting shaft 30 which fixed the end face to the spherule 21 is carried out to the back end annular section 29 through the spherical-surface bush 32. The actuation wire which is not illustrated, respectively is connected with both the spherical points 33 and 34 of the shift arm 24 and the selection arm 26.
[0012] In the channel form section 16 of the body 13 of equipment, the front end side of the both-sides plate part 35 is attached in the axial insertion holes 36 and 37 which consist in them rockable through the 1st support shaft 38 by which insertion maintenance was carried out at the front end side of the coexistence going-up section 8 in the supporter material 4. Therefore, the front end side of the coexistence going-up section 8 constitutes the 1st supporter A in the car body 1 for preparing the car anterior part side of the body 13 of equipment rockable.
[0013] In the lever supporter 17 of the body 13 of equipment, the axial insertion hole 39 which penetrates it and is prolonged in a longitudinal direction is formed in the back end part. The 1st support shaft 38 and the parallel 2nd support shaft 40 are inserted in the axial insertion hole 39, and the both ends of the 2nd support shaft 40 are inserted in the axial insertion hole 41 which is in the back end part 10 of the coexistence going-up section 8 in the supporter material 4 there, respectively, and are held. It is open for free passage to the axial insertion hole 41, and the circular slot 42 narrower than the diameter of the 2nd support shaft 40 is formed in the suspension section 11 which stands in a row in the back end parts 10 of the left and the right, and it, respectively. Each circular slot 42 centers on the 1st support shaft (axial center) 38.

Therefore, the back end part 10 of the coexistence going-up section 8 and both the suspension section 11 which hold the 2nd support shaft 40 and have the circular slot 42 constitute the 2nd supporter B of a car body 1.

[0014] In said configuration, if a shift lever 14 is moved to a longitudinal direction, the selection arm 26 will rock forward and backward centering on the support shaft 28, and if a shift lever 14 is moved to a cross direction, the shift arm 24 will move similarly. Thereby, gear change actuation can be performed.

[0015] In drawing 3 , if the impulse force F beyond a predetermined value acts on the gear change operating set 12 14, for example, a shift lever, thereby, the 2nd support shaft 40 can absorb penetrating and the high impulse force F of the beginning certainly compulsorily into the circular slot 42 from the axial insertion hole 41 like **********. Since it sets after that, the 2nd support shaft 40 rocks centering on the 1st support shaft 38 with the body 13 of equipment like ********** and the circular slot 42 is destroyed continuously, said impulse force F can be attenuated gradually.

[0016]

[Effect of the Invention] According to this invention, the ideal impulse force absorption structure of the gear change operating set for cars equipped with the function which may absorb certainly the high impulse force which acts on a shift lever, and the function which sets after that and can decrease said impulse force gradually can be offered at the beginning.

[Translation done.]

* NOTICES *

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damages caused by the use of this translation.

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is the perspective view of the gear change operating set equipped with impulse force absorption structure.
[Drawing 2] It is the decomposition perspective view of the gear change operating set equipped with impulse force absorption structure.
[Drawing 3] It is an operation explanatory view.
[Description of Notations]
1 Car Body
12 Gear Change Operating Set
13 Body of Equipment
14 Shift Lever
38 1st Support Shaft
40 2nd Support Shaft
41 Axial Insertion Hole
42 Circular Slot
A The 1st supporter
B The 2nd supporter
F Impulse force

[Translation done.]